

1. The Degree Programme: Concept, content & implementation

1.1. Objectives and learning outcomes of a degree programme

The Marine Science Study Program (MSSP) of Hasanuddin University was established in 1988 under the name of Marine Science and Technology Study Program, under Minister of Education Decree No. 18/DIKTI/Kep/1988 dated 14 May 1988. In 1996, the name was changed to Marine Science Study Program (MSSP), under Decree of the Director General of Higher Education No.532/DIKTI/Kep/1996, and accommodated within the Faculty of Marine Science and Fisheries under Minister of Education and Culture Decree No. 036/O/1996 dated 29 January 1996.

The establishment of MSSP is relevant to achieving the Hasanuddin University vision as a Centre of Excellence for the development of the humanities, science, technology, arts, and culture based upon the concept of the Indonesian Maritime Continent. In addition, establishing the Marine Science Department implements the UNHAS marine/maritime orientation and science-based principles.

The MSSP vision is to become a Center for Education and Development of Exploration and Conservation of Coastal and Marine Resources in Southeast Asia by 2030. To achieve this vision, the MSSP has the following mission: 1) Organizing quality education in the field of exploration and conservation of coastal and marine resources that ensure the development of the capacity of innovative and proactive learners; (2) Developing science and technology in the marine sector, especially exploration and conservation of coastal and marine resources; (3) Carry out community service activities and develop partnerships with other institutions to manage coastal, marine, and small island resources. The vision and mission of MSSP are definitely in line with those of the Faculty of Marine Science and Fisheries (<https://fikp.unhas.ac.id/?p=1411>) and Hasanuddin University (<https://unhas.ac.id/v2/visi-dan-misi/>) vision.

The objectives of the MSSP are derived from the vision and mission above, and therefore the objectives of MSSP align with its vision and mission. The objectives of MSSP are to:

1. Produce intellectuals who are adaptive to the development of science in conserving coastal and marine resources.
2. To produce superior research in the field of Marine Science for the benefit of the Indonesian Maritime Continent (BMI).
3. Applying science and technology in the efficient conservation of coastal and marine resources for the benefit of the Indonesian Maritime Continent.

Program Learning Outcomes (Graduate profile)

The Marine Science Study Program (MSSP) has formulated a set of 11 intended learning outcomes (ILOs) based on stakeholder aspirations, the vision and mission of Hasanuddin University, the Indonesian Qualification Framework (IQF) and the National Standard for Higher Education (SN-DIKTI), the Indonesian Forum for Marine Science and Fisheries Tertiary Education, and benchmarked to the Marine Science study program of James Cook University (Figure 1.1).

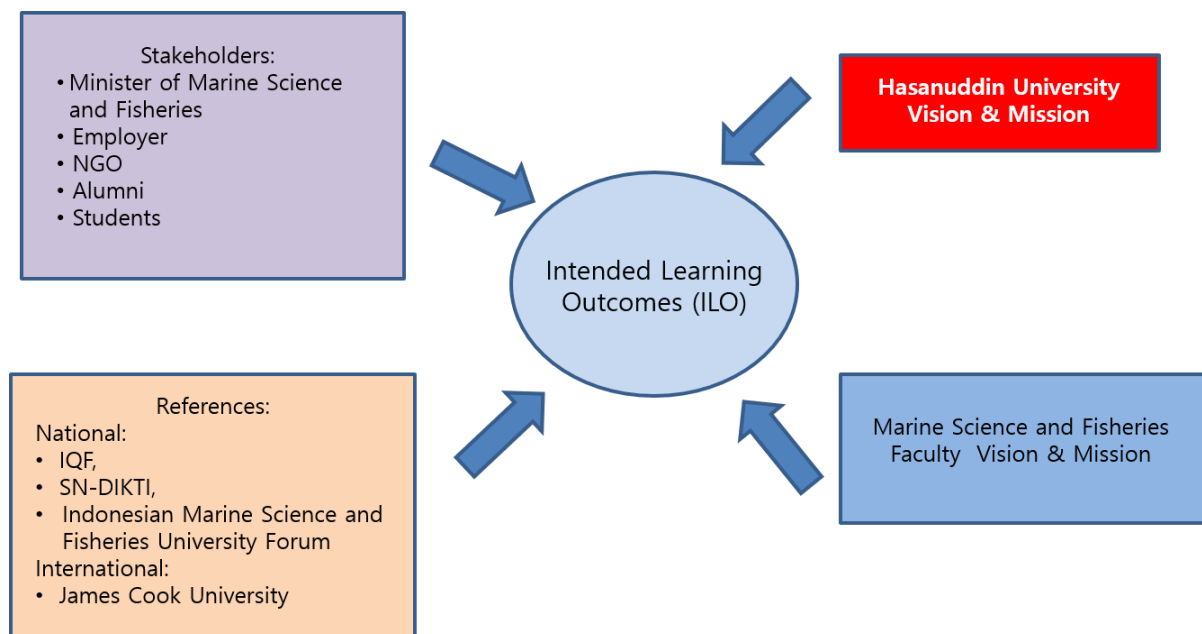


Figure 1.1. Approach in formulating MSSP Intended Learning Outcomes

The ILOs were developed during an academic workshop conducted in 2019 involving lecturers, students, alumni, and employers. Prior to the workshop, input from alumni tracer studies and employers, and consultations with stakeholders were used to formulate Program Learning Outcomes (PLOs) or MSSP graduate profile. The Indonesian Forum for Marine Science and Fisheries Tertiary Education consensus definition of an Indonesian marine science graduate profile is: “graduates who are able to explore and conserve marine living resources with mastery” and can become marine researchers, marine educators, and marine surveyors. “Mastery” in this context means that the graduates should possess widely recognized and valued knowledge, general and specific skills, and an appropriate professional attitude, acquired as a result of education, experience, and achievement. In addition to researcher, educator, and conservationist, two professions are added to the MSSP Program Learning Outcomes (PLOs), i.e. Manager and Marine Surveyor. “Manager” was added to the MSSP graduate profile based on benchmarking to the Bachelor in Marine Science program of James

Cook University, Australia. One Marine Science learning outcome for James Cook University graduates is that they will be capable of managing human impacts on the marine environment.

After formulating the MSSP PLOs, the next steps were to identify the competencies (knowledge and skills) required for such a profile and match them with the learning outcomes as stated in the Indonesian Qualification Framework (IQF) level 6, including the ability to apply scientific knowledge, adaptability, the ability to think logically and critically, the ability to take responsibility, provide leadership and complete tasks in a professional manner. The vision and missions of Hasanuddin University were also incorporated into the MSSP PLOs. The Hasanuddin University (Unhas) vision is to become a center of excellence in the development of human capacity, science, technology, arts and culture, rooted in the concept of an Indonesian Maritime Continent.

The competencies which must be possessed by each profile are presented as follow:

PLO1 (Marine Researcher): graduates who are capable of investigating problems in the field of marine science in the development of science and technology to solve marine science-related problems locally, regionally, and internationally.

PLO2 (Marine Educator): graduates who are able to motivate, teach, facilitate, design, and evaluate learning processes and receive feedback related to the knowledge and competence in the field of marine sciences.

PLO3 (Marine conservationist): graduates who can implement various conservation and rehabilitation methods and techniques in major ecosystems and tropical marine resources such as estuarial areas, mangrove forests, seagrass beds, coral reefs, and rare and protected animals.

PLO4 (Manager): graduates who are able to manage marine and fisheries resources to provide optimal and sustainable results and profits.

PLO5 (Marine Surveyor): graduates who are able to identify biological and non-biological objects at the bottom and column of the sea, design, implement, analyze, and disseminate the results of marine resources surveys by utilizing mapping science and spatial technology)

Name of the degree programme

Graduates of the Marine Science Study Program (MSSP) will get a degree in marine science known as a Sarjana Kelautan (S.Kel) or Bachelor in Marine Science, which is equivalent to level 6 of the Indonesian Qualification Frameworks (KKNI). The Ministry of Higher Education Decree no. 257/M/KPT/2017 regarding the name of the study program at the college serves as the foundation for the terminology of "Sarjana Kelautan (S.Kel)". The degree program's name uses terms that

Indonesian marine science-related employ. Stakeholders who have become acquainted with the vision and mission of MSSP are favorable toward it.

1.2. Curriculum

Based on the history the Marine Science as a study program in the Marine Science Department was formed through the Decree of the Director General of Higher Education No. 532/Dikti/Kep/1996 and under the auspices of the Faculty of Marine Sciences and Fisheries, Hasanuddin University. In the last 15 years there have been four curriculum changes, namely the 2007 curriculum, the 2010 curriculum, the 2014 curriculum, and the 2019 curriculum which have been used for the last 2 years. This curriculum change is routinely carried out at least once every 4-5 years as a response to the development of Science, Technology and Arts (IPTEKS), and global changes as well as the needs of society and the needs of graduate users. Curriculum change always begins with curriculum evaluation which is intended to perfect the curriculum by revealing successes and deficiencies in the process of implementing the curriculum for a certain period of time, in achieving the goals that have been set.

Curriculum changes from the 2014 curriculum to the 2019 curriculum began with carrying out a tracer study intended for the purposes of preparing the ASEAN University Network Self-Assessment Report - Quality Assurance (SAR AUN-QA) in early 2017 for alumni and users by utilizing the Whatsapp Group network owned by alumni per class entering college. Tracking was continued again by using the Google form which was distributed to the alumni of the PS S1 IKL. The Google form was sent to the account of each alumni who graduated in the 2016-2019 academic year, based on data released by the IKL Undergraduate Study Program at each graduation. Information such as the waiting time before getting the first job, the current field of work, and what are the tasks and jobs that are their duties and authorities, are the target of tracking these graduates. Curriculum of MSSP is based on Ministry of Education Republic Indonesia No. 8 /2013 about **KKNI** Higher Education. The K-19 Curricula is structured into basic courses, intermediate courses, specialized courses, and final projects (thesis) for the 1st to 4th year of study. The basic courses or general courses for the first year students, intermediate courses or inter department/faculty specific courses are offered to the second year students, the specialized courses (study program specific courses and supporting courses) are for third years students, and student community service program (KKN) as well as final project (thesis) are for the fourth year students. All course modules are delivered using student-centred learning that aims to enhance students' lifelong learning competence. In the academic, the teaching strategies include:

- Laboratory practicum;
- Field observation

- Group discussion;
- Problem-based learning;
- Task-based learning;
- Project-based learning;
- Interactive lecture;

1.3. Admission requirements

There are three entry systems to this program:

1. **National Selection of State University Entrance (SNMPTN).** The system is based on tracking the academic achievement of prospective students from first to third years during their study in Secondary School.

The requirements for following the SNMPTN route are:

SMA/SMK/MA students or equivalent (including Republic of Indonesia schools abroad) who have a National School Identification Number (NPSN) and have filled out the School and Student Database (PDSS) completely and correctly.

SMA/SMK/MA students or equivalent (including Republic of Indonesia schools abroad) last grade of the current year and take the National Examination (UN) that meet the following requirements:

1. Have superior achievements, namely prospective participants enter the best ranking in schools, with conditions based on school accreditation as follows:
 - A. Accreditation A, the best 50% in school;
 - B. Accreditation B, the best 30% in school;
 - C. Accreditation C, the best 10% in school
 - D. Not yet accredited, the best 5% in his school
 - E. The ranking is carried out by the Central Committee.
 2. Have NISN and registered by the Central Committee.
 3. Have semester 1 to semester 5 report cards (for SMA/SMK/MA students or equivalent of three years) or grades from semester 1 to semester 7 (for four year SMK) which have been filled out by PDSS.
2. **Joint Entrance Selection of State Universities (SBMPTN).** This selection is based on the test of Basic Academic Potency and Basic Competency in Science.

The requirements for following the SBMPTN route are:

- a. Graduates of SMA/SMK/MA or equivalent and package C, the last 2 (two) years must have a diploma.

- b. For graduates of SMA/SMK/MA or equivalent and package C in the current year, they must have a certificate of completion of secondary education or a Package C certificate.
 - c. The selection participants have adequate health so that it does not interfere with the smooth learning process in their study program.
 - d. Those who have passed SNMPTN are not allowed to register.
3. **Local University Entrance.** This selection is based on the local University Entrance, consist of: Non-Subsidiary Pathway and Sport, arts and Science Achievement Pathway, yaitu, antara lain:
- 1. *Non-Subsidiary Pathway*
This entry system is based on the specific potency of candidate origin. The university should accommodate all varieties of local academic and learning conditions of candidate origin. The eligible candidate had been enrolled in Hasanuddin University through SBMPTN but failed to pass selection.
 - 2. *Sport, Arts and Science Achievements Pathway*
This entry system is based on student achievement in national tournaments in Sport, Arts and Science.
The requirements for following the local university entrance:
 - a. Registered as a participant in the current year's SBMPTN exam;
 - b. Those who have passed the current year's SBMPTN and SNMPTN are not allowed to register.
 - c. Registered as interested in one of the Hasanuddin University study programs through the current year's SBMPTN route.
 - d. For applicants for the current year's sports, arts and sciences (POSK) tracking track, they are allowed to register;
 - e. Have physical health that does not interfere with the smooth learning in the study program of his choice.

1.4. Work load and credits

The Marine Science study program has eight semesters with 144 credit courses (equivalent to 244.8 ECTS). Lectures in this study program consist of 14-16 meetings per semester. Taking into account the maximum number of credits that can be taken by students per semester (24 credits), a student of the Marine Science study program can earn a sarjana degree after 7-8 semesters.

In this study program, the Credit Points System (CP), also known as SKS (Semester Credit Unit) is implemented based on the Indonesian National Higher Education Standards, (Permenristekdikti No.

50 of 2018). One credit is equivalent to 170 minutes each week (depending on the learning model applied to each course) with details:

For a lecture or tutorial, 1 credit is interpreted as 50 minutes of face-to-face meetings, 60 minutes of structured assignments and 60 minutes of self-study. For seminars, 1 credit is defined as 100 minutes of face-to-face meetings and 70 minutes of self-study, while for practicum, 1 credit is 170 minutes of practicum in the laboratory. From this detailed explanation, it can be concluded that the value of 1 credit in the Marine Science Study Program at Hasanuddin University is equivalent to 1.7 credit points in the ECTS system for a 25-hour workload.

In the first year (semester 1 and semester 2), generally the courses provided are intended as general courses and basic sciences. These courses are required by the ministry of higher education, or that are declared mandatory from the university. These courses are structured as a first-year student package consisting of 19 courses, with a credit score of 45 or the equivalent of 76.5 ECTS. In the following semesters, the courses are then structured in such a way as to be able to provide students with a broad view of oceanography, marine organisms, the environment and the health of marine ecosystems.

Courses that will support the achievement of CPL are in semesters 3-5 which contain a load of 65 credits (110.5 ECTS) for compulsory courses. To complement students' abilities in applying the scientific method and data analysis to be used in final project research, four compulsory courses with 12 credits (20.4 ECTS) are prepared in semester 6.

Enrichment courses start in semester 3 with a 2 credits course and more variations are offered in semesters 4, 5 and 6. Students are allowed to take elective courses of at least 11 credits (18.7 ECTS) which are expected to support their knowledge and interest in completing their final project research later. In the period between the completion of the sixth semester and the period before the seventh semester starts, students are expected to do Community Service Program (KKN) which is a mandatory activity with 4 credits (6.8 ECTS).

To be able to use a sarjana degree in Marine Science, students of Marine Science Study Program of Hasanuddin University are required to conduct seminars and research with a load of 1 (1.7 ECTS) and 6 credits (10.2 ECTS) respectively which are expected to be completed in 1 up to 2 semesters.

1.5. Didactics and Teaching Methodology

Each course will be equipped with a Semester Learning Plan (RPS) which contains the course name, course objectives and CPL for the course, including the CPL for the study program entrusted to the course. The subject that will be covered also included in weekly bases.

RPS is prepared by the teaching team under the coordination of the course coordinator. The preparation of RPS is guided by the CPL of the study program entrusted to the course. It is the

responsibility of the course coordinator to ensure that students know and understand the lesson plan, by explaining it in detail to students during face-to-face lectures in the first week. RPS is also uploaded in SIKOLA, including when there are assignments. Also inform students to register for the course at SIKOLA and the Whatsapp group. It is hoped that this will facilitate communication between lecturers and students as well as between lecturers and lecturers because all courses are taught by more than 1 lecturer.

Learning includes face-to-face lectures, both offline and online, practicum in the laboratory and in the field. Learning models vary depending on the objectives to be achieved by the course. Generally, still using active teaching methods, collaborative learning, and group discussions. Case-based learning and program-based learning have recently been implemented in several courses.

Referring to university rules, students are entitled to be evaluated in one course if their attendance in the lecture process is not less than 80%. Evaluation methods also vary depending on the objectives to be achieved by the course. The method of evaluating learning outcomes is decided jointly by the teaching team. The method can be in the form of exams, writing essays, exams to show ability to work in the laboratory and in the field, and being active during group discussions.

2. Exams: System, Concept & Organisation

2.1. Exams: System, concept and organisation

Exams are given to gauge each student's progress individually. The Rector Decree of UNHAS No. 2781/UN4.1/KEP/2018, which is available to students on the MSSP website and University website, governs examinations. Exam techniques are typically divided into categories depending on general courses and final assignments (community services and final projects).

General courses.

ILOs are converted into Course Learning Outcomes (CLO) and Lesson Learning Outcomes (LLO) for each course to assess ILO accomplishments. Following the development of indicators, marking criteria, and assessment techniques based on each LLO that is recorded in RPS for the Semester ([Appendix X](#)). RPS contains information about the connection between assessments with ILO and LLO. Each course uses various assessment techniques, including formative assessment (written quizzes and exams), group discussions, presentations, case studies, lab/field exercises, and project reports ([Table X](#)).

The semester learning plan, which includes the assessment procedures and grading scheme, is distributed to the student by the course coordinator at the start of the semester and made accessible to them via the learning management system (SIKOLA). To ensure neutrality in the marking process for both the assessment and the examination, rubrics ([Appendix X](#)) are employed. Students are informed of instructions, rubrics, and assessment deadlines in class and on SIKOLA. Before the release of the final grade, constructive feedback is given to the student's assignment and exam both directly and through the learning management system (SIKOLA). Semester Learning Plans are assessed by Faculty Internal Quality Assurance (GPM) to ensure the process of continual improvement, and workshops for developing semester learning plans and rubrics are also held.

In general courses, the final grade is determined by structure assignments (individual and group assignments), case studies, final exams, and (in some courses) laboratory activities gradually distributed during the semester. The majority of exams are written tests. However, some exams may also be offered in other ways, like oral presentations, scientific writing, or drafts of proposals. Following the academic calendar established by the Rectorate, the final test is held during the sixteenth week of the semester. The study program staff informs the students of the timetable, including exam schedules, before the semester starts.

Students must attend at least 80% of the lectures in order to take the final semester exam. Additionally, students who cannot take the final exam must notify their situation to the course coordinator of at least one day before the exam and submit sufficient documentation to postpone it. Students who do not pass their final test can take remedial classes once.

The course coordinator is responsible for uploading each course's final grade to Neosia according to the academic calendar at <https://neosia.unhas.ac.id/>. Students can view their final grades on the same website. Within the study program and faculty, reminders are frequently sent to prevent delays in the final score announcement. Students who did not pass a course should retake it the following semester. Within one week of the deadline for submitting their final grades on Neosia, students who are unhappy with their final grades should contact the course organizer. Then, under Rector Decree No. 1139/UN4.1/KEP/2021 about the Standard Operational Procedure of Appeal Procedure, the course coordinator will review the data and, if required, make revisions.

Laboratory and Field Works.

Practical work, including laboratory and field work, is performed to assess the psychomotor skills of the students in several general courses. The credit point for practical work is included in the credit for general courses. For instance, the physical oceanography assessment course awards one credit point for laboratory work and two credit points for lectures. Typically, a practical work course's grade makes up about 30% of the overall grade for general courses. The course coordinator and practical work assistants oversee the laboratory activities.

According to the Ministerial Regulation of Research Technology and Higher Education, No. 44/2015, the practical work is weighted between 30 and 35 percent of the final mark. Students' skills or specific course competence is evaluated with credit point (CP) 3 (equal to 5.1 ECTS), or laboratory work. The laboratory and fieldwork activity receives one CP. This laboratory job requires 170 minutes each week (duration). Pre-test (quizzes), lab skills/performances, and reports are some assessment methods utilized for laboratory work.

Every semester in MSSP, integrated fieldwork is often conducted in several target locations. For instance, integrated fieldwork activities for the courses such as Marine Biology, Marine Ecology, Physical Oceanography, Sedimentology, Chemical Oceanography, and Coralogy are carried out during the first (odd) semester. The students participate in various activities, including observing and recording seagrass and coral reefs, measuring different oceanographic variables, using marine survey tools and techniques, gathering data, processing and analyzing data, and writing a fieldwork report.

MSSP students have access to several laboratories at Hasanuddin University, including the Chemical Oceanography Laboratory, Physical Oceanography and Coastal Geomorphology Laboratory, Water Quality Laboratory (Fisheries Department), Soil Laboratory (Faculty of Agriculture), and Civil Engineering Laboratory (Faculty of Engineering), which offer both fieldwork and laboratory facilities. In order to assist the integrated fieldwork in accessing satellite and meteorology-climatology data, data processing, and mapping techniques, MSSP also established collaboration with LAPAN (National

Institute of Aeronautics and Space) and BMKG (Meteorological, Climatological, and Geophysical Agency).

The integrated fieldwork is carried out in the coastal areas or small islands and lasts about 3 to 4 days. A marine field station of UNHAS is available to support the integrated fieldwork in the small islands, and a teaching pond unit of UNHAS is available to support the integrated fieldwork in the coastal areas. Both facilities belong to Hasanuddin University. The assessment models for the fieldwork are mainly oral tests and fieldwork reports. The report content refers to a questionnaire for each subject that is distributed to all students. The team teaching and practical assistants examine and evaluate these assessments.

Community Service

The types of community service (CS) can take the form of regular community service, national community service, partnership community service, professional or thematic community service, fieldwork practices, and industrial work practices, according to Hasanuddin University Rector's Regulation No.6/UN4.1/2019. Students can follow the requirements for CS participants in the current semester and between semesters if they have completed at least 114 credits, as shown by their transcript (Study Result Card). Students who have completed their four credit hours of community service, or around two months of service (6.8 ECTS), must write a report. Then, as part of their community service requirement, they must deliver the report orally (orally tested) to two examiners chosen and arranged by the FIKP and the university. Students can demonstrate the knowledge and skills they learned from the activity in this exam. The test results will be made public on the UNHAS website (<https://neosia.unhas.ac.id>).

Final Project (Thesis)

Students are required to take a final project (thesis) in the fourth year of studies by conducting a research and writing a bachelor thesis under assistance of two supervisors. There are several steps for completing the final project, including choosing and deciding a research topic, proposing a research titles, developing a research -proposal, presenting the proposal in a seminar, conducting research, presenting the research results, and and final exam.

To find a suitable research topic for the thesis, the student generally proposes their ideas after reading the research article and previous final thesis as references and discuss them with another student or ask their academic advisor or other teachers for suggestions. In addition, the course of marine science research methodology is designed to prepare students for final project and finding a suitable topic for their Bachelor's thesis. Many students have also joined the teachers' research to quickly gain suitable topics for their research work.

Before doing the actual research work, each student must propose a research title to the department, and relevant teachers will be appointed to give comments and suggestions on the proposed title. Once the department has accepted the proposed research title, the student can start to write a research proposal and presents it in a seminar attended by lecturers and other students ($\geq$ five students). Before conducting a proposal seminar, the research proposal has to be accepted by the Dean, who will then appoint the research supervisors for the students.

Based on the university's rules, each student has two research supervisors and two examiners. One will act as the principal supervisor and the other act as co-supervisor. To achieve the ILOs related to this final project, the head of MSSP selects the supervisors and examiners based on competence about the research topic and proposes to the FIKP Dean to be approved. From the proposal seminar result, based on the rubric, the principal supervisor must determine whether the student can continue the research work directly or continue with revision, or must repeat the proposal seminar.

After completing the work on the Bachelor's thesis, the student has to present and defend the results in front of teachers and fellow students at the result seminar. Then each student must revise their thesis draft based on the students' and teachers' (supervisors and examiners) comments and suggestions. Once after completing and accommodating all the suggestions and comments, students have to discuss the revised draft with the supervisors. Furthermore, the admin staff can propose the schedule for the final thesis exam, which the FIKP Dean must approve.

Assessment components of the final project exam are concept mastery (30%), analytical ability (30%), analogy ability (30%), and systematic answers (10%). Notable for the final exam, the assessment method is all these components covering 60% of the total plus points of the thesis report (40%). The final exam will be carried out through an oral presentation test (comprehensive test) based on Rector Decree No. 2781/UN4.1/KEP/2018, in which students must defend their results of the research works as well as all knowledge (courses) related to their research in front of all examiners (including two supervisors) (Dean Regulation of Marine Science and Fisheries Faculty, 2019).

3. Resources

3.1. Staff and Staff Development

There are 35 lecturers in MSSP, including 10 professor, 11 associate professor, 13 assistant professor, and 1 lecturer. Among MSSP lecturers, 34 staff have completed their doctorate degrees from reputable universities in Indonesia and universities in some foreign countries such as Australia, New Zealand, Japan, Korea, England, France and Germany. The expertise and courses of all lecturers and their contribution to ILOs can be found in Table 3.1. The ratio of Academic staff to student in year 2022-2023 was 1:15. This ratio is ideal to enable sufficient interaction between students and academic staff.

Table 3.1. Lecturers of MSSP, expertise and courses

No.	Staff	Expertise	Courses
1.	Prof. Dr. Ir. Andi Niartiningih, MP	Conservation of Marine Resources	Mariculture Management, Seeding and Breeding of Marine Biota, Rehabilitation Techniques of Coastal and Marine Ecosystem, Law and Regulation on Marine and Fisheries Methods of Marine Researches, Management of Conservation Areas, Conservation Genetics
2.	Prof. Dr. Ir. Budimawan, DEA.	Fishery Biology	Introduction to Marine Science and Fisheries, Law and Regulation on Marine and Fisheries, Data Analysis of Marine Bioecology
3.	Prof. Dr. Ir. Ambo Tuwo, DEA.	Biological Oceanography (Minor Marine Ecology)	Marine Ecotourisms, Marine Ecology, Introduction to Marine Science and Fisheries Marine Biology, Basics of Analysis on Environmental Impacts
4.	Dr. Ir. Amir Hamzah Muhiddin, M. Si	Hydrography and Marine Accoustic	Marine Acoustics, Navigation and Sailormanships, Coastal and Marine Mapping, Marine Modelling, Basics of Computation, Methods and Techniques of Living Marine Resource

		Surveys, Hydrographic Survey
5. Dr. Muh. Anshar Amran, M.Si	Marine Remote Sensing	Coastal and Marine Mapping, Geographical Information System for Marine Areas, Coastal Geomorphology, Basics of Marine Physics, Hydrographic Survey, Marine Project Management
6. Dr.Abd. Rasyid J, M. Si	Physical Oceanography	Marine Acoustics, Marine Meteorology, Navigation and Sailormanships, Introduction to Oceanography, Swimming and Basics of Diving
7. Drs. Sulaiman Gosalam, M. Si	Marine Microbiology	Marine Planktonology, Marine Microbiology, Parasites and Marine Organism Diseases, Bioremediation, Co-Curricular
8. Dr. Ir. Muh. Farid Samawi, M. Si	Chemical Oceanography	Marine Pollution, Introduction to Oceanography, Aquatic Ecology, Chemical Oceanography, Basics of Analysis on Environmental Impacts, Co-Curricular
9. Prof. Dr. Ir. Abd. Haris, M. Si	Marine Biology	Marine Biology, Marine Ecology, Coralogy, Scientific Diving, Marine Zoology, Swimming and Basics of Diving
10. Dr. Ir. M. Rijal Idrus, M. Sc	Management and Conservation of Coastal Resources	Anthropology and Communication of Maritime Community, Introduction to Marine Science and Fisheries, Methods of Marine Research, Marine and Fishery entrepreneurship, Marine Project Management

11. Dr. Ir. Syafiuddin, M. Si	Breeding of Marine Organisms	Seeding and Breeding of Marine Biota, Ichthyology, Mariculture Management, Marine Zoology, Physiology of Marine Organisms, Management of Marine Conservation Areas
12. Dr. Ir. Arniati, M. Si	Marine Microbiology and Coral Diseases	Marine Natural Product, Marine Pollution, Marine Planktonology, Coralogy, Marine Microbiology, Aquatic Ecotoxicology, Parasites and diseases of Marine Biota, Bioremediation
13. Dr. Inayah Yasir, M. Sc	Marine Biology	Marine Botany, Seeding and Breeding of Marine Biota, Marine Zoology, Marine Biology, Conservation Genetics
14. Prof. Dr. Ir. Jamaluddin Jompa, M. Sc	Coral Reef Management	Rehabilitation Techniques Coastal and Marine Ecosystems, Coralogy, Marine Ecology, Methods of Marine Researches
15. Dr. Ir. Aidah A.Ala Husain, M. Sc	Ecology Coral Fishes	Marine Ecology, Scientific Diving, Ichthyology, Coralogy, Swimming and Basics of Diving, Basics of Computation, Marine Zoology
16. Dr. Ir. Shinta Werorilangi, M. Sc	Marine Pollution and Ecotoxicology	Marine Pollution, Statistics, Physiology of Marine Biota, Analysis of Marine Bioecological Data, Aquatic Ecotoxicology
17. Prof. Dr. Amran Saru, ST., M.Si.	Marine Ecology	Marine Ecology, Rehabilitation Techniques Coastal and Marine Ecosystems, Management of Coastal and Marine Areas , Law and Regulation on Marine and Fisheries

18.	Dr. Ir. Muh.Hatta, M. Si	Ecological Modelling of Marine Living Resources	Marine Meteorology, Marine Planktonology, Statistics, Marine Modelling, Basics of Computation, Analysis of Marine Bioecological Data
19.	Prof. Dr. Ir. Chair Rani, M. Si	Marine Ecology	Statistics, Marine Ecology, Coralogy, Methods and Techniques of Living Marine Resource Surveys, Analysis of Marine Bioecology Data, Rehabilitation Techniques of Coastal and Marine Ecosystem, Conservation Genetics
20.	Prof. Dr. Nurjannah Nurdin, ST, M. Si	Marine Remote Sensing	Marine Acoustic, Geographical Information System for Marine Areas, Marine Remote Sensing, Management of Coastal and Marine Areas
21.	Dr. Ir. Rahmadi Tambaru, M. Si	Marine Planktonology	Marine Planktonology, Ichthyology, Introduction to Oceanography, Chemical Oceanography,
22.	Dr. Khairul Amri, ST, M. Sc. Stud	Bioecology of Marine Plants	Marine Botany, Marine Planktonology, Introduction to Oceanography, Physiology of Marine Biota
23.	Dr. Syafyuddin Yusuf, M. Si	Coral Reef Invertebrates	Breeding of Marine Organisms, Scientific Diving, Techniques of Coastal and Marine Ecosystem Rehabilitation, Coralogy, Swimming and Basics of Diving, Methods and Techniques of Living Marine Resource Surveys
24.	Prof. Dr. Ir. Rohani AR, M. Si	Marine Ecology and Restoration Ecosystem	Aquatic Ecology, Statistics, Marine

		Ecology, Methods of Marine Researches, Analysis of Marine Bioecology Data	
25.	Dr. Supriadi, ST., M. Si	Bioecology of Marine Plants	Marine Botany, Marine Ecology, Marine Biology, Methods and Techniques of Living Marine Resource Surveys
26.	Prof. Dr. A. Iqbal Burhanuddin, ST., M. Fish	Fish Taxonomy	Introduction to Marine Science and Fisheries, Ichthyology, Co-Curricular, Techniques of Coastal and Marine Ecosystem Rehabilitation, Swimming and Basics of Diving, Marine Zoology
27.	Dr. Ahmad Bahar, ST, M. Si	Conservation of Living Marine Resources and Marine Ecotourism	Anthropology and Communication of Maritime Community, Marine Ecotourism, Law and Regulation on Marine and Fisheries, Management of Coastal and Marine Areas
28.	Dr. Mahatma Lanuru, ST., M. Sc	Oceanography and Ecosystem Dynamics	Marine Meteorology, Sedimentology, Introduction to Oceanography
29.	Dr. Muhammad Banda Selamat, S. Pi, M. Si	Resource Mapping and Geographical Information System	Marine Acoustic, Coastal and Marine Mapping, Geographical Information System for Marine Areas, Basics of Computation, Methods and Techniques of Living Marine Resource Surveys, Management of Coastal and Marine Areas, Hydrographic Survey
30.	Dr. Yayu A. La Nafie, ST, M. Sc	Seagrass Bioecology	Marine Botany, Sedimentology, Rehabilitation Techniques of Coastal and Marine Ecosystem, Swimming and Basics

		of Diving, Marine Biology,
31.	Dr. Rantih Isyrini, ST, M.Env.Sc	Marine Pollution
32.	Dr. Wasir Samad, S. Si, M. Si	Physical Oceanography and Marine Hydrodynamics
33.	Dr. Ahmad Faisal, ST, M. Si	Mapping of Living Marine Resources
34.	Hendra Hasyim, S. Kel, M. Si	
35.	Dr. Widyastuti, S. Kel	Conservation Genetics

Table 4.2. MSSP student to staff ratio

Academic Year	Staff	Students	Staff to Student Ratio
2022/2023	35	519	1 : 15
2021/2022	36		
2020/2021	36		
2019/2020	36		
2018/2019	37		

No.	Staff	N-Publication s	H-Index	N-Citation
1.	Prof. Dr. Ir. Andi Niartiningih, MP			
2.	Prof. Dr. Ir. Budimawan, DEA.	14	2	39
3.	Prof. Dr. Ir. Ambo Tuwo, DEA.	68	11	457
4.	Dr. Ir. Amir Hamzah Muhiddin, M. Si			
5.	Dr. Muh. Anshar Amran, M.Si	4	2	21
6.	Dr.Abd. Rasyid J, M. Si	24	8	157
7.	Drs. Sulaiman Gosalam, M. Si			
8.	Dr. Ir. Muh. Farid Samawi, M. Si	14	5	78
9.	Prof. Dr. Ir. Abd. Haris, M. Si	93	6	111

10.	Dr. Ir. M. Rijal Idrus, M. Sc	1	1	1
11.	Dr. Ir. Syafiuddin, M. Si	14	4	53
12.	Dr. Ir. Arniati, M. Si	9	3	21
13.	Dr. Inayah Yasir, M. Sc	51	11	356
14.	Prof. Dr. Ir. Jamaluddin Jompa, M. Sc	144	30	4512
15.	Dr. Ir. Aidah A. Ala Husain, M. Sc	1	1	1
16.	Dr. Ir. Shinta Werorilangi, M. Sc	26	8	974
17.	Prof. Dr. Amran Saru, ST., M.Si.	12	3	31
18.	Dr. Ir. Muh. Hatta, M. Si			
19.	Prof. Dr. Ir. Chair Rani, M. Si	19	4	53
20.	Prof. Dr. Nurjannah Nurdin, ST, M. Si	45	6	299
21.	Dr. Ir. Rahmadi Tambaru, M. Si	15	2	30
22.	Dr. Khairul Amri, ST, M. Sc. Stud	28	4	66
23.	Dr. Syafyuddin Yusuf, M. Si	17	5	125
24.	Prof. Dr. Ir. Rohani AR, M. Si	62	14	682
25.	Dr. Supriadi, ST., M. Si	17	5	73
26.	Prof. Dr. A. Iqbal Burhanuddin, ST., M. Fish	29	8	125
27.	Dr. Ahmad Bahar, ST, M. Si	26	3	30
28.	Dr. Mahatma Lanuru, ST., M. Sc	27	6	151
29.	Dr. Muhammad Banda Selamat, S. Pi, M. Si	9	2	6
30.	Dr. Yayu A. La Nafie, ST, M. Sc	20	7	860
31.	Dr. Rantih Isyrini, ST, M. Env. Sc	6	3	21
32.	Dr. Wasir Samad, S. Si, M. Si	8	3	14
33.	Dr. Ahmad Faisal, ST, M. Si	14	3	32
34.	Hendra Hasyim, S. Kel, M. Si			
35.	Dr. Widyastuti, S. Kel	12	4	48

3.2. Student Support and Student Services

Each lecture at MSSP is given responsibility as Academic Advisor (PA) to guide students in achieving successfulness in their study. Currently, each Academic advisor at MSSP is handling 15-20 students from all entry years. According to the Rector's Decree No. 1870/HO4/p/2009 concerning Academic Regulations, Academic Advisors are tasked with protecting and guiding students entering campus life, monitoring and recording student progress, explaining to students on their rights and obligations etc.

The university has also facilitated Student Services Counseling to help students to solve their problems. If there are students who have problems and need support or follow-up, academic advisors should recommend students to the counseling unit. The university has also provided Job Placement Center to help graduates enter the job market. This unit regularly holds exhibitions and job fairs to connect graduates with industry and the business world.

3.3. Funds and equipment

Class-room facilities; 2) Educational and research laboratory facilities; 3) Field laboratories (Marine Field Station, Teaching Pond, and Marine and Fish Hatcheries); 4) Coral Center; 5) Hasanuddin University Seaweed Development and Utilization Center of Excellence for Science and Technology (PUI-P2RL); 6) University Center for Research Activities (PKP); 7) IT/Multimedia; 8) Library; 9) Meeting and conference room

The Department of Marine Sciences, Hasanuddin University manages 6 (six) laboratory units to support the implementation of the 2023 Curriculum. Currently, laboratory operations are carried out by 2 (two) laboratory staff and 2 (two) honorary staff. The names of these laboratories are Marine Ecology, Ecosystem Captive and Rehabilitation, Marine Microbiology, Marine Biology, Physical Oceanography and Coastal Geomorphology, Chemical Oceanography, and Marine Ecotoxicology.

The Marine Ecology Laboratory is located in the old FIKP (Marine Science) building with a room area of 12 x 9 m². This room has a practice capacity of 40 people per activity, with standard lighting of 78.6 lux. In the table below, details of the facilities in the Marine Ecology laboratory are presented.

Tabel 2. Marine Ecology Laboratory

No.	Equipment	Brand/Specification/Model	Volume (Unit)
1.	Digital Balance	Acis	3
2.	Glass Cover Freezer	GEA	1
3.	Ekman Grab Sampler	AMS	1
4.	Plankton Net	25 micron	1
5.	Microscop	Yazumi	1
6.	Macroscop	Yazumi	1
7.	Hand Refractometer	Atago	1
8.	Oven	Un30 Memmert	1
9.	Quadrat Transect	Custom 0,5 m x 0,5 m	1
10.	Microscop	Nikon Eclipse E100	1

4. Transparency and Documentation

4.1. Module descriptions

The curriculum guides the implementation of learning in the MSSP. In the curriculum book, MSSP details the learning structure that is implemented for students. MSSP is ideally carried out for eight semesters by completing 49 compulsory and 19 elective courses. The total ECTS that students must have to have a Bachelor of Marine Science (S.Kel/B.Sc) degree is 244.8 credits. Courses presented in MSSP consist of compulsory university courses (23.8 credits), compulsory study program courses

(200.6 credits), and specialization/elective study program courses (20.4 credits). All courses are formulated into a Semester Learning Plan (RPS), which is revised annually based on the study program's evaluation and monitoring results. The revision of RPS always begins with an evaluation of the implementation of learning and student achievements which are intended to perfect the SLP by disclosing successes and deficiencies in the implementation process for a certain period in achieving the goals that have been set.

MSSP provides RPS, which students can access through an online system built by the university called SIKOLA (<https://sikola.unhas.ac.id/>). Each course lecturer and student is given an account to access the lesson plan along with the lecture material that will run. In addition, face-to-face, in the first week of lectures, the substance of the lesson plan will be explained to students so they can get an overview of the courses that will be completed in the next 14–16 weeks.

In particular, each lesson plan presented explains the learning outcomes expected to be fulfilled by students. The RPS has a brief description of the course, Course Learning Outcome (CLO), course teaching lecturers, learning strategies and methods, the percentage of material for each meeting, and student evaluation (attached RPS).

4.2. Diploma and Diploma Supplement

Students who have met the passing standards will receive a Bachelor of Marine Science (S. Kel/B.Sc) degree as well as a bachelor's diploma and grade transcripts for all courses that have been completed. This is regulated in the Chancellor's Regulation of Hasanuddin University number 2781/UN4.1/KEP/2018 regarding Implementing Undergraduate Programs at Unhas.

Every student is given support and freedom to channel their talents and interests in both academic and non-academic fields. In addition to a bachelor's degree, students are given a Diploma Companion Certificate of Competence (SKPI). SKPI is a document that contains student identity, including academic or non-academic achievements that have been achieved. These supplements are presented in Indonesian and English and refer to the SKPI issuance rules (Chancellor's Regulation 1832/UN4.1/KEP/2018).

MSSP expects graduates to have specific skills that they can apply and develop after becoming alumni and blending into society. One form of support is that at the Faculty of Maritime Affairs and Fisheries, there is a Competency Test Site (TUK) and a Professional Certification Institute (LSP), which have been certified and obtained a license from the National Professional Certification Agency (BNSSP), which students can access (proof of license). Students can access competency subjects, such as Diving Training and Assessment of Ecosystem Conditions, including Mangrove, Coral, and Seagrass (proof of certificate). In addition to the availability of TUK and LSP in the internal faculty, students can participate in external activities supporting their interests, talents, and competencies.

Administratively, students will be directed to register the supplementary activities on the <https://apps.unhas.ac.id/skpi/> page to input information such as types of activities, duration, invitations to implement activities and other relevant data. Students can participate in the program included in the SKPI for as many as 14 activities (proof of this statement); if it is more than that, the student will be asked to determine the priority of the activities that are registered.

4.3. Relevant rules

In carrying out its function as a tertiary institution, Unhas has a legal basis that is regulated by university regulations and policies that are derivatives of the regulations of the Minister of Education and the Government of Indonesia. All policies within Unhas, including those of lecturers, students, and the university, are regulated in the Unhas Statutes. Students who enter the Unhas community have rights and obligations that must be fulfilled in developing their potential according to higher education standards.

In general, the implementation of academic activities within the scope of MSSP refers to policies established by the university so that the educational process runs in a structured, strategic, systematic, and directed manner. This commitment is demonstrated by the accessibility of instruments for the entire Unhas community, including students. Every Unhas student from within and outside the country can access the academic rules in the academic book given to each new student by visiting <https://akademik.unhas.ac.id/home/documents> to discover their rights and obligations.

As part of the admissions process, new students receive organized coaching from academics and study programs regarding their rights and obligations as participants in the Introduction to New Student Campus Life (PK2MB) activities. This is regulated in the Chancellor's Regulation Number 36621/UN4.1/PP.37/2017 regarding the admission of Hasanuddin University New Students. The rights and obligations of students are published in these regulations, which are also available at <https://akademik.unhas.ac.id/home/dok>. Including regulations regarding student responsibility for paying tuition fees, registering for classes, attending lectures at least 80% of the time, completing assignments, taking midterm and final semester exams, and practicing with results according to established standards. Students have rights such as using the library, the internet, and all existing facilities within Unhas.

Furthermore, in the implementation of education, in this case, curriculum, curriculum development and evaluation are carried out in accordance with Unhas Academic Senate Regulation Number 46929/UN.4/IT.03/2016 concerning Curriculum Development Policy for Study Programs at Unhas. These regulations are to facilitate the running of an effective and efficient curriculum. The Chancellor's Regulation Number 2781/UN4.1/KEP/2018 concerning the Implementation of the Unhas

Undergraduate Program was also formed with the aim of containing provisions related to the educational process, such as study period, student load, student study services, the process of completing studies, and student graduation.

Not only at the university level, regulation elaboration is carried out at the faculty and study program levels, and students are facilitated to discuss directly with leadership elements if there is something unclear about the applicable regulations.

5. Quality Management: Quality Assessment and Development

5.1. Quality management: quality assessment and development

5.1.1. Quality Management

The quality assurance system is used to monitor how the teaching and learning process is being implemented, as well as how administration, supporting facilities, and infrastructure are being used. Quality assurance is implemented from the university level, faculty to study programs. The Institute for Quality Assurance and Educational Development (LPMPP) oversees the institution at the university level. The Quality Assurance Unit (GPM) oversees the institution at the faculty level. The Monitoring and Evaluation Unit oversees the institution at the study program level.

The formal document for determining the implementing elements of quality assurance at the university level, namely LPMPP, is contained in the Regulation of the Chancellor of Hasanuddin University Number 8/UN4.1/2018. The implementing element of quality assurance at the faculty/UPPS level is called the Faculty Quality Assurance Group (GPMF), which is contained in the Decree of the Chancellor of Hasanuddin University Number: 152/UN4.1/KEP/2018 concerning Dismissal and Appointment of the Chairperson of the Quality Assurance Group at the Faculty of Marine Sciences and Fisheries, University Hasanuddin (FIKP). The implementing element of quality assurance at the study program level in the Faculty of Marine Sciences and Fisheries Unhas is called the Study Program Quality Assurance Unit (UJM Prodi). UJM PS S1 IKL consists of two personnel appointed by the Dean through the Decree of the Dean of the Faculty of Marine Sciences and Fisheries, Hasanuddin University Number: 29/UN4.15/KEP/2020. (<https://bit.ly/UJMProdi>).

The quality assurance at the FIKP has been implemented using an Internal Academic Quality Audit Standard document based on the Decree of the Dean of FIKP, Hasanuddin University Number: 689/UN4.16/KP.24/2015. The Internal Academic Quality Audit Standard documents consist of various policies and guidelines that contain mechanisms, procedures, quality standards, and a commitment to comprehensive quality assurance management, including (1) FIKP Internal Quality Assurance System Policy, (2) FIKP Internal Quality Assurance System Manual, and (3) FIKP Internal Quality Assurance System Standards (SPMI).

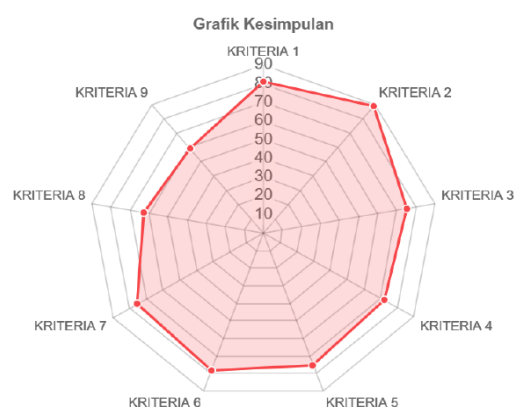
The implementation of the quality assurance system runs according to quality assurance standards and has been carried out internally and periodically. Quality assurance at the Marine Science Study Program level, including students' evaluation of the quality of lectures and lecturer performance, is carried out at the end of each semester. The implementation of quality assurance is also carried out in thesis guidance using the student consultation logbook and the number of attendances at seminars based on the requirements set out in the thesis guide. Moreover, quality assurance is implemented by evaluating the administrative services or performance of employees and the

laboratory every semester through a lecturers' meeting forum and a student survey. In addition, meetings are regularly held at the department as a quality assurance function every month to control the implementation of the teaching and learning process, administration, and supporting facilities and infrastructure.

The implementation of the academic quality assurance at the MSSP is carried out through several activities, including monitors and evaluating the quality of learning delivered by the lecturers, Evaluating the performance of lecturers using an EWMP approach, Developing quality improvement to increase GPA achievement, encouraging the lecturers to prepare their plans regarding learning activities, research, community service, scientific writing, asking the lecturers to provide feedback on the implementation/performance of thesis guidance for the mentored students, evaluating the suitability of the lecture material with the Semester Study Plan (RPS).

The Quality Assurance Unit has also developed instruments to measure satisfaction. It derives from student satisfaction surveys to implement academic activities, lecturers, and education staff satisfaction surveys, alumni satisfaction surveys, and graduate user and partner satisfaction surveys. The results are presented in real-time on the Marine Science and Fisheries Faculty website (<https://>). The input/feedback obtained through the Satisfaction Survey will be summarized by Quality Assurance Unit and submitted to the relevant work unit for quality improvement. In the MSSP itself, the results of this satisfaction survey are discussed at the semester work meeting and followed up for future quality improvement.

The Quality Assurance Unit implements the Internal Quality Audit (AMI) each year by conducting monitoring and evaluation. The elpmi.unhas.ac.id link was used to complete the AMI form online. Results from the AMI are used to improve or maintain the quality of the institution. The Quality Assurance Unit has also developed instruments to measure satisfaction including student satisfaction surveys to implement academic activities, lecturers and education staff satisfaction surveys, alumni satisfaction surveys, graduate user and partner satisfaction surveys.



Gambar 1. Contoh hasil Audit Mutu Internal (AMI)

According to Law of the Republic of Indonesia Number 12 the Year 2012 on Higher Education, quality assurance is not only done internally; a system for externally evaluating higher education has also been implemented. The BAN-PT oversees external quality assurance for all marine scientific and fisheries study programs. Access to the tools and procedures for adopting BAN-PT certification is available at <https://.....>The MSSP submitted an application for BAN-PT certification in 2017 and was granted A status in accordance with Decree No....., which is valid until 2022. Additionally, the MSSP submitted for international accreditation for the first time in 2017 through the ASEAN University Network Quality Assurance (AUN-QA), and it was determined that it had met ASEAN requirements.

5.1.2. Assessment of PLO Achievement

5.1.3. Assessment of ILO Achievement

5.1.4. Assessment of CLO Achievement

5.1.5. Key performance indicators of MSSP student

5.1.6. Program Development and SWOT Analysis